

CLAIMS

What is claimed is:

1. A communication system comprising:
  - a. a development sector for registering a plurality of wireless devices;
  - b. a business sector for controlling utilization of an application program and for receiving application data;
  - c. a service sector for deploying the application program and for providing the application data to the business sector in accordance with communication with at least one wireless device of the plurality; and
  - d. a mobile sector comprising the plurality of wireless devices, each device for receiving the application program deployed by the service sector, executing the application program in response to the business sector, and communicating with the service sector to support provision of the application data to the business sector.
2. The communication system of claim 1 wherein the business sector comprises:
  - a. a subsystem coupled to the service sector for receiving the application data; and
  - b. a server coupled to the service sector for supporting browsing by a client computer.
3. The communication system of claim 2 wherein browsing comprises controlling utilization of the application program.
4. The communication system of claim 2 wherein the service sector comprises an application server:
  - a. that communicates with the subsystem via a first protocol; and
  - b. that communicates with the server via a second protocol, different from the first protocol.
5. The communication system of claim 1 wherein the service sector comprises:
  - a. an application server that provides the application data; and
  - b. a gateway server that deploys the application program to the plurality of wireless devices; and provides communication between the plurality of wireless devices and the application server.
6. The communication system of claim 5 wherein the gateway server communicates with the mobile sector via a first protocol and communicates with the application server via a second protocol different from the first protocol.

1 7. The communication system of claim 5 wherein the service sector further comprises a content  
2 server coupled to the gateway server for providing the application program for deployment.

1 8. The communication system of claim 1 wherein the development further supports browsing by a  
2 client computer and browsing accomplishes development of the application program.

1 9. The communication system of claim 8 wherein the application program is developed to  
2 incorporate an address of at least one of a subsystem of the business sector, a server of the business  
3 sector, an application server of the service sector, and a gateway server of the service sector.

1 10. The communication system of claim 1 wherein:

2 a. the system further comprises a finance sector comprising:

3 (1) a plurality of merchant servers each supporting taking an order in accordance  
4 with operation of a wireless device of the plurality of wireless devices; and

5 (2) a plurality of transaction subsystems each for accounting for order payment for a  
6 respective merchant server; and

7 b. the service sector comprises:

8 (1) an application server that provides the application data;

9 (2) a gateway server that deploys the application program to the plurality of wireless  
10 devices; and provides communication between the plurality of wireless devices and the application  
11 server; and

12 (3) a payment server that operates as a payment clearinghouse for the plurality of  
13 transaction subsystems.

1 11. The communication system of claim 1 wherein the application program facilitates  
2 communication between a first wireless device of the plurality and a second wireless device of the  
3 plurality.

1 12. The communication system of claim 11 wherein the application program further provides  
2 between the first and second wireless devices at least one of the functions of voice communication, data  
3 synchronization, serverless email, wireless device locating, and RFID device tracking.

1 13. The communication system of claim 11 wherein the application program further comprises at  
2 least one of the functions of call forwarding and conference calling.

1 14. The communication system of claim 1 wherein:

2 a. the service sector comprises a gateway server and at least one of an application server, a

3 payment server, and a content server; and

4 b. the application program facilitates communication between a wireless device of the  
5 plurality and at least one of the application server, the payment server, and the content server.

1 15. The communication system of claim 12 wherein the application program further provides  
2 between the wireless device and the at least one server at least one of the functions of credit  
3 authorization, email, access to databases, receiving an announcement, receiving a delegated task, and  
4 placing an order.

1 16. The communication system of claim 12 wherein the application program is deployed to provide  
2 actor functions in cooperation with the at least one server.

1 17. The communication system of claim 1 wherein:

2 a. the service sector comprises a gateway server and at least two of an application server, a  
3 payment server, and a content server; and

4 b. the application program facilitates communication between a wireless device of the  
5 plurality and at least two of the application server, the payment server, and the content server.

1 18. The communication system of claim 17 wherein the two servers comprise a first server  
2 supporting payment transactions; and a second server supporting at least one of order fulfillment,  
3 package tracking, automated manufacturing, quality control, and inventory control.

1 19. The communication system of claim 17 wherein the two servers are application servers.

1 20. The communication system of claim 17 wherein the two servers are payment servers.

1 21. The communication system of claim 17 wherein the two servers are content servers.

1 22. The communication system of claim 17 wherein the application data facilitates monitoring a  
2 licensed function of a wireless device of the plurality.

1 23. The communication system of claim 16 wherein the application program is deployed to provide  
2 actor functions in cooperation with the at least two servers.

1 24. A service sector comprising:

2 a. a database comprising:

3 (1) indicia of registration of each of a provided plurality of wireless devices; and

- 4 (2) a first component of a distributed processing application program; and  
 5 b. a server coupled to the database and to a provided broadcast sector, the server  
 6 cooperating with the broadcast sector to transfer the first component to each registered wireless device of  
 7 the plurality, the server for, after successful transfer of the first component to all registered wireless  
 8 devices of the plurality, providing application data to a provided business sector in accordance with  
 9 execution of the first component in at least one of the registered wireless devices.

1 25. The service sector of claim 24 wherein the server comprises a content server comprising the  
 2 database and a gateway server, the content server communicating with the gateway server via a first  
 3 protocol, the gateway server communicating with the broadcast sector via a second protocol different  
 4 from the first protocol.

1 26. The service sector of claim 25 wherein the content server accomplishes registration of each  
 2 wireless device in accordance with inputs received from a provided development sector.

1 27. The service sector of claim 25 wherein an operation of the distributed application program being  
 2 performed by a particular wireless device is controlled in response to an input from the development  
 3 sector.

1 28. The service sector of claim 24 wherein the server comprises:  
 2 a. an application server for providing the application data to the provided business sector;  
 3 and  
 4 b. a gateway server, the application server communicating with the gateway server via a  
 5 first protocol, the gateway server communicating with the broadcast sector via a second protocol different  
 6 from the first protocol.

1 29. The service sector of claim 28 wherein the application server performs a second component of  
 2 the distributed application program, the application data being provided in accordance with performance  
 3 of the second component.

1 30. The service sector of claim 29 wherein the application server communicates with the business  
 2 sector via a third protocol, different from the first protocol and different from the second protocol.

1 31. The service sector of claim 24 wherein an operation of the distributed application program being  
 2 performed by a particular wireless device is controlled in response to an input from the business sector.

1 32. A service sector comprising:

- 2 a. a database comprising:
- 3 (1) indicia of registration of each of a provided plurality of wireless devices; and
- 4 (2) a first component of a distributed processing application program;
- 5 b. a content server for storing in the database the indicia of registration in accordance with
- 6 inputs received from a provided development sector;
- 7 c. a gateway server coupled to the database and to a provided broadcast sector, the gate
- 8 server cooperating with the broadcast sector to transfer the first component to each registered wireless
- 9 device of the plurality; and
- 10 d. an application server for performing a second component of the distributed application
- 11 program after successful transfer of the first component to all registered wireless devices of the plurality,
- 12 the second component for providing application data to a provided business sector in accordance with
- 13 execution of the first component in at least one of the registered wireless devices.

1 33. The service sector of claim 32 wherein an operation of the distributed application program being

2 performed by a particular wireless device is controlled in response to an input from the business sector.

1 34. The service sector of claim 32 wherein an operation of the distributed application program being

2 performed by a particular wireless device is controlled in response to an input from the development

3 sector.

1 35. A method of registering a wireless device, the method comprising:

2 receiving first indicia of identification of the wireless device;

3 receiving second indicia of identification of an auxiliary device for use with the wireless device;

4 and

5 storing the first indicia in association with the second indicia and in association with a unique

6 account identifier.

1 36. The method of claim 35 performed by a server, the server in communication with a provided

2 browser, wherein at least one of the first indicia and the second indicia are received from the browser.

1 37. The method of claim 35 further comprising providing an application engine to the wireless

2 device.

1 38. The method of claim 35 further comprising enabling the wireless device to execute an

2 application engine of the wireless device.

1 39. The method of claim 35 further comprising providing data to the wireless device for storage in

2 the wireless device, the data for confirming identity of a user of the wireless device.

1 40. The method of claim 35 further comprising providing an algorithm to the wireless device for  
2 storage in the wireless device, the algorithm for confirming identity of a user of the wireless device.

1 41. A method of registering a wireless device, the method performed by a server and a browser in  
2 communication, the method comprising:

3 providing to the server via the browser indicia of device type of the wireless device;  
4 invoking communication between the browser and the wireless device to obtain indicia of  
5 identification of the wireless device; and  
6 storing at the server the indicia of identification in association with an account identifier.

1 42. The method of claim 41 further comprising providing, via the communication between the  
2 browser and the wireless device, an application engine to the wireless device.

1 43. The method of claim 41 further comprising enabling, via the communication between the  
2 browser and the wireless device, the wireless device to execute an application engine of the wireless  
3 device.

1 44. The method of claim 41 further comprising providing, via the communication between the  
2 browser and the wireless device, data to the wireless device for storage in the wireless device, the data for  
3 confirming identity of a user of the wireless device.

1 45. The method of claim 41 further comprising providing, via the communication between the  
2 browser and the wireless device, an algorithm to the wireless device for storage in the wireless device,  
3 the algorithm for confirming identity of a user of the wireless device.

1 46. The method of claim 41 further comprising receiving data from the wireless device for storage in  
2 association with the account identifier, the data for confirming identity of a user of the wireless device.

1 47. A method of developing an application program for deployment to a plurality of wireless  
2 devices, the method performed by a server and a browser in communication, the method comprising:  
3 describing via the browser a plurality of functions to be performed by a provided wireless device,  
4 a plurality of associations, and a plurality of parametric values;  
5 receiving from the browser a multiplicity of selected functions, selected associations, and  
6 selected parametric values;  
7 forming a program in accordance with the multiplicity of selected functions, selected

8 associations, and selected parametric values, the program adapted for being compiled into a respective  
9 format for execution by each type of the multiplicity of types of wireless devices, execution being only  
10 after activation.

1 48. The method of claim 47 wherein the plurality of associations comprises a relationship for series  
2 functional execution and a relationship for parallel functional execution.

1 49. The method of claim 47 wherein the plurality of functions include a communication function via  
2 a protocol of the OSI application layer.

1 50. The method of claim 49 wherein at least one respective compiled format is in accordance with  
2 WBXML.

1 51. The method of claim 47 wherein the program is formed in accordance with an extensible markup  
2 language.

1 52. The method of claim 47 wherein activation is in accordance with a time of day.

1 53. The method of claim 47 wherein activation at a particular wireless device is in accordance with  
2 receipt of a message at the particular wireless device.

1 54. A method for deploying a distributed process application program, the program having a first  
2 component to be performed by a wireless device, the method comprising:  
3 publishing the first component to a plurality of wireless devices; and  
4 rendering available for use the first component in each of the plurality of wireless devices.

1 55. The method of claim 54 wherein each wireless device has a type, and publishing comprises:  
2 determining at least one type of wireless device of the plurality of wireless devices;  
3 obtaining a compiled version of the first component for execution in accordance with the  
4 determined type; and  
5 providing the compiled version of the first component to each wireless device having the  
6 determined type.

1 56. The method of claim 54 wherein rendering comprises directing the wireless device to permit  
2 execution of the first component after passage of a time of day.

1 57. The method of claim 54 wherein rendering comprises directing the wireless device to permit

2 execution of the first component after receipt of a message.

1 58. The method of claim 54 further comprising:  
2 receiving from a provided browser publication parameters; and  
3 directing publication in accordance with the publication parameters.

1 59. The method of claim 54 further comprising:  
2 determining a second component of the distributed processing application program; and  
3 publishing the second component to at least one application server, the application server, in  
4 accordance with the second component, communicating with at least one wireless device of the plurality.

1 60. The method of claim 59 further comprising rendering available for use the second component.

1 61. The method of claim 60 wherein rendering the second component available for use by all  
2 application servers precedes rendering any first component available for use by any wireless device.

1 62. The method of claim 54 further comprising registering a plurality of wireless devices, each  
2 registered device comprising an application engine for performing the first component.

1 63. The method of claim 62 wherein registering a particular wireless device comprises downloading  
2 the application engine into the particular wireless device.

1 64. The method of claim 62 wherein registering a particular wireless device comprises installing into  
2 the particular wireless device a memory comprising the application engine.

1 65. The method of claim 54 further comprising registering a plurality of wireless devices, each  
2 registered device comprising an application engine for performing the first component and an auxiliary  
3 device.

1 66. The method of claim 65 wherein the auxiliary device comprises memory for storing the first  
2 component.

1 67. A method of programming a wireless device, the method comprising:  
2 registering the wireless device, the wireless device comprising an application engine; and  
3 transferring a program to the registered wireless device via a wireless medium.

1 68. The method of claim 67 wherein the step of transferring the first application program further



comprises receiving at least one instruction directing transfer of the first application program to the at least one registered wireless devices.

69. A method of operating a wireless device, the method comprising:  
selecting a registered wireless device;  
selecting at least one application program executable by the selected wireless device; and  
requesting execution of the selected application program by the selected wireless device.

70. A method of operating a plurality of wireless devices, the method comprising:  
requesting execution of an application program by the plurality of wireless devices;  
receiving data from each wireless device of the plurality;  
determining that all wireless devices have executed the application program; and  
providing a report in accordance with data received from the plurality of wireless devices.

71. The method of claim 70 performed by a server in communication with a browser, wherein:  
the server provides a list of registered devices to the browser; and  
the server receives from the browser indicia identifying the plurality of wireless devices.

72. A method for controlling the use of a plurality of auxiliary devices, the method comprising:  
determining and storing a control parameter for each association of a plurality of associations that have been established each association being between an auxiliary device of the plurality and at least one registered wireless device of a multiplicity of registered wireless devices;  
receiving a request for use, the request comprising indicia of a desired wireless device and a desired auxiliary device;  
determining a particular control parameter stored for a particular association of the plurality of associations, the particular association corresponding to the desired auxiliary device and the desired wireless device;  
providing to the wireless device indicia of authorized use in accordance with the particular control parameter.

73. The method of claim 72 wherein indicia of authorized use is provided in accordance with at least one of date and time of day.

74. The method of claim 72 wherein indicia of authorized use prescribes a duration of time during which use is authorized.

75. A method for confirming a payment arrangement comprises:

receiving notice of the payment arrangement, the notice comprising a description, and indicia for reply;

determining, in accordance with the indicia for reply, a confirmation address for communication with a wireless device, and confirmation data for identifying a user;

providing a request to the confirmation address, the request in accordance with the description;

receiving a response;

determining a responding address in accordance with the response;

providing notice of fraud to a predetermined address in response to determining a discrepancy between at least one of:

the responding address with respect to the confirmation address; and

the response with respect to the confirmation data.

76. The method of claim 75 wherein determining in accordance with the reply comprises obtaining from a database the confirmation address and the confirmation data, the database indexed in accordance with the indicia for reply.

77. The method of claim 75 wherein the indicia for reply comprises at least one of a telephone number, an email address, and a URL of a wireless device.

78. The method of claim 75 wherein the confirmation data comprises at least one of a username, a password, a question, and a nonce.

79. The method of claim 75 wherein:

the method further comprises determining an account number in accordance with the indicia for reply; and

the notice of fraud further comprises the account number.

80. The method of claim 75 wherein:

the response comprises indicia of recognition indicative of whether the payment arrangement was recognized as having been initiated by the current user; and

notice of fraud is provided in further accord with the indicia of recognition.

81. A method for registering a wireless device, the method performed by the wireless device, the method comprising:

sending a request for registration to a provided server, the server comprising an account; and

sending indicia of an identification of the wireless device to the server, the server for storing the indicia of identification in association with the account.

1 82. The method of claim 81 further comprising:  
2 receiving software from the server in accordance with the request; and  
3 determining the indicia of identification in accordance with the software.

1 83. The method of claim 82 wherein the software comprises instructions for execution by the  
2 wireless device.

1 84. The method of claim 82 wherein the method further comprises:  
2 determining indicia of a quantity of memory in the wireless device; and  
3 sending the indicia of quantity to the server.

1 85. The method of claim 84 wherein the at least one of the steps of determining indicia of quantity  
2 and sending indicia of quantity are performed in accordance with the software.

1 86. The method of claim 81 further comprising sending a message via a wireless interface of the  
2 wireless device to verify an effect of registration.

1 87. A method for preparing a wireless device for performing part of a distributed processing  
2 application program, the method performed by a computer, the method comprising:  
3 establishing communication via a first link to the wireless device;  
4 receiving a first message via the first link, the first message comprising indicia of identification  
5 from the wireless device;  
6 sending a second message via the first link to permit the wireless device to perform the part of  
7 the distributed processing application program; and  
8 sending a third message in accordance with the indicia of identification to a server of a wireless  
9 network, the third message for enabling use of the wireless network by the wireless device for performing  
10 part of the distributed processing application program.

1 88. The method of claim 87 wherein the wireless device initiates establishment of communication  
2 via the first link.

1 89. The method of claim 87 further comprising sending software to the wireless device via the first  
2 link, the software for preparing at least a portion of the first message.

1 90. The method of claim 87 wherein the second message comprises an application engine.

1 91. The method of claim 87 further comprising transfer of software to the wireless device, the part of

2 the distributed processing application program being performed in accordance with the software.

1 92. The method of claim 91 wherein the software is transferred to the wireless device via the  
2 wireless network.

1 93. The method of claim 91 wherein the software is transferred to the wireless device via the first  
2 link.